

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Spectrum Policy Task Force Notice of Inquiry) ET Docket No. 02-135

Nokia, Inc. (“Nokia”) hereby submits comments in response to the questions on issues related to the Federal Communications Commission’s (“Commission”) spectrum policies as posed by the Commission’s Spectrum Policy Task Force in its *Public Notice* of June 6, 2002 and in the above-captioned proceeding. Nokia is a global company with 54,000 employees worldwide with key growth areas in wireless and wireline communications. A pioneer in mobile telephony, Nokia is the world’s leading mobile phone supplier and a top supplier of mobile, fixed and IP networks, as well as related services.

1. Market-Oriented Allocation and Assignment Policies

As communications becomes part of a rapidly global marketplace, it is becoming increasingly critical that any and all spectrum allocations should be made in the context of globally harmonized spectrum.

Internationally harmonized spectrum allocations provide benefits to manufacturers, operators, consumers and governments. Global spectrum allows manufacturers to keep equipment affordable through economies of scale, introduce new and innovative features in terminals, and reduce the time to market of new technologies and equipment. Operators benefit from global purchasing power, increased efficiency from deploying equipment across the same bands, and a larger global base of customers, including international users who roam to the United States. End-users benefit from a wider and more affordable range of competitive devices and service offerings, as well as global roaming.

In general, more spectrum will be needed for commercial wireless technologies over the next decade. The trend in wireless communications appears to be a continuing rise in demand for voice services combined with quickly increasing demand for spectrum-hungry data services. As the Commission notes in its Seventh Annual CMRS Competition Report, estimates of the number of wireless Internet users at year-end 2001 range from approximately 8 to 10 million, a substantial increase from previous estimates of 2 to 2.5 million at the end of 2000.¹ While new technologies like Software Defined Radio (SDR) may help alleviate the growing spectrum crunch, these technologies are not a panacea for true spectrum management. It is not clear that these technologies will be cost-

effective enough for mass deployment or that their increased spectral efficiencies will keep pace with this fast-growing demand.

While additional spectrum is needed for licensed commercial wireless services such as cellular, PCS and 3G, additional spectrum should also be set aside for unlicensed devices such as Wi-Fi. These services can add tremendous benefits to U.S. economy and are often an integral part of a larger wireless vision, supporting the growth of advanced wireless services that provide voice and data. Unlicensed spectrum is where some of newest and most innovative services are developed that might otherwise not be able to develop if they were burdened with licensing costs. As long as sufficient interference protection is given to existing incumbents, the Commission should make every effort to make more spectrum available.

In order to best meet increasing demand for a scarce resource, spectrum planning will need to evolve into a longer-term planning process. Ad-hoc or piecemeal approaches to spectrum management tend to result in inefficient use of the spectrum. It is possible to maintain sufficient flexibility to deal with market changes while still drawing a broad roadmap for spectrum allocations. This kind of a roadmap provides much needed market certainty for manufacturers and operators as they develop new equipment and services and can help ensure that spectrum is used wisely and efficiently.

Flexibility within the context of this broader roadmap can help facilitate the goal of efficient use of the spectrum. For example, the Commission's current policy of flexible service rules for new services and bands being auctioned in generally a good one.

However, flexibility --- like new technologies --- should not be viewed as a panacea to spectrum management challenges. Flexibility in excess can undermine spectrum management goals as much as excessively rigid policies. For example, the Commission should exercise great caution in granting additional flexibility to incumbent users within their existing spectrum after spectrum has been assigned. Retroactive granting of flexibility to incumbents can put other existing commercial providers at a competitive disadvantage (e.g. where existing operators of a service that paid high prices for spectrum originally intended for that service are forced to compete against a "new" operator who has spectrum that cost far less because it was given or auctioned for a different --- and perhaps less valued --- service). Retroactive granting of flexibility undermines the principle that the entity that values the

¹ Federal Communications Commission, *Seventh Annual CMRS Competition Report*, pp.4-5.

spectrum most will pay accordingly. Additionally, retroactively granted flexibility can create interference and spectrum efficiency problems by crowding dissimilar services into the same or adjacent bands, creating the need for additional guard bands or other interference mitigation techniques.

The Commission should reallocate spectrum that is being under utilized or where the services provided have turned out to market failures. Granting flexibility to these incumbents is a market distortion that provides unneeded assistance where the market has already spoken.

When looking at restructuring of spectrum, one element that would help facilitate this process would be the implementation of a “trust fund” through which revenues from an auction are used to pay for relocation of U.S. government incumbent users out of auctioned spectrum. This would ensure that new entrants are able to direct resources towards deployment of new infrastructure and creates greater certainty for new licensees and incumbents alike.

It should be noted that while auctions may provide an efficient means for assigning licenses, the Commission should be careful that the costs of auctions and associated relocations are kept to a minimum, as these costs can place a tremendous financial burden on operators, which is likely to be passed on to the end-users. Auctions should only be used as a tool to get spectrum to the market as quickly as possible to the entity that values it most, never to meet public budget objectives. Additionally, spectrum that is being made available for auction should be unencumbered or, where it is encumbered, should have a mechanism – such as a “trust fund” – that will pay for relocation in the shortest amount of time possible. This provides greater certainty to bidders and developers of equipment and will speed the introduction to the market of new services.

While not within the scope of this proceeding, in light of increasing demand for spectrum, the current bifurcated U.S. spectrum management structure merits examination. While the Commission and the National Telecommunications and Information Administration (“NTIA”) currently work together to the best of their ability, the existing process can result in spectrum management as a zero-sum game. Consideration should be given to a single entity that would manage all spectrum users. This would allow for the spectrum managers to view the frequencies they oversee with a more comprehensive point-of-view, greater long-term planning of the spectrum and could facilitate more flexible use and the introduction of market forces for all users, be they commercial, government or public service entities.

2. Spectral Efficiency

Due to auctions and other market pressures, commercial providers of wireless services already have incentives to use spectrum as efficiently as possible. Any efforts by the Commission to define spectrum efficiency standards would be unadvisable as they would not be able to keep pace with technological developments and would detract from the current flexibility of today's service rules.

The Commission can and should, however, consider incentives for users who did not pay for their spectrum through auction to use their spectrum more efficiently. The Commission should also work closely with the NTIA to ensure that Federal government users of spectrum have real and effective incentives to use their spectrum more efficiently.

3. International Issues

U.S. domestic spectrum allocation and assignment should take global market developments and spectrum allocations into consideration to the greatest extent possible. Manufacturers and operators provide equipment and services to a global marketplace and can provide a greater choice of lower-cost equipment when they can take advantage of the economies of scale created by globally harmonized spectrum. Users – either consumers who travel, business users who work in a multinational business environment, or government users who fight wars and provide public services internationally -- increasingly need affordable services and equipment they can use overseas.

Conversely, the United States will best be able to participate in and influence regional and international meetings on spectrum policy if it makes its domestic spectrum decisions early and decisively. The creation of a broad roadmap for spectrum planning could facilitate this process by educating our international partners on our spectrum policy thinking early on. The United States has been most successful in international negotiations when it has made a positive spectrum allocation decision and brought this decision to regional or international meetings early in the negotiation process, while there is still time to build understanding and support for U.S. positions. The United States will be most likely to find support for its spectrum policy positions if these positions take into account global market and regulatory considerations.